

Comparisons of Job Characteristics

Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation: Hydrologists (19-2043)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 72

Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation: Hydrologists (19-2043)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Mathematics	9.2	17.7	15.3	< Expanded education and/or training may be required
Engineering and Technology	5.7	17.4	20.6	> Current knowledge level is likely sufficient
Geography	3.9	16.7	10.2	<< Extensive education and/or training may be required
Physics	4.3	15.7	11.4	<< Extensive education and/or training may be required
Chemistry	4.8	15.6	10.2	<< Extensive education and/or training may be required
Biology	3.7	13.6	5.0	<< Extensive education and/or training may be required
Design	5.2	12.6	16.6	>> Current knowledge level is likely more than sufficient
Law and Government	5.9	11.3	12.5	> Current knowledge level is likely sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 82

Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation: Hydrologists (19-2043)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Critical Thinking	10.8	14.5	15.2	0 Current skill level may be sufficient
Science	4.5	13.0	11.5	< A higher skill level may be required
Mathematics	6.2	12.8	13.9	0 Current skill level may be sufficient

Programming	2.2	6.5	8.3	>	Skill level is likely sufficient
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The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 98				
Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151) Associated Occupation: Hydrologists (19-2043)						
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation		
Inductive Reasoning	10.2	14.6	14.1	0	Current ability level may be sufficient	
Written Comprehension	11.0	14.6	15.7	0	Current ability level may be sufficient	
Written Expression	9.8	14.1	15.1	0	Current ability level may be sufficient	
Problem Sensitivity	11.1	13.9	14.8	0	Current ability level may be sufficient	
Mathematical Reasoning	6.3	13.8	12.8	0	Current ability level may be sufficient	
Deductive Reasoning	10.6	13.4	15.5	>	Current ability level is likely sufficient	
Flexibility of Closure	7.8	12.0	12.2	0	Current ability level may be sufficient	
Originality	7.6	11.5	11.0	0	Current ability level may be sufficient	
Fluency of Ideas	7.6	11.3	11.8	0	Current ability level may be sufficient	
Category Flexibility	9.0	11.2	13.8	>	Current ability level is likely sufficient	
Number Facility	6.3	10.8	10.1	0	Current ability level may be sufficient	

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 80
Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151) Associated Occupation: Hydrologists (19-2043)		
Work Activities	Exclusivity of Activity	
Adhere to safety procedures	12	
Advise clients or customers	19	
Analyze ecosystem data	69	
Analyze geological research data	87	
Analyze scientific research data or investigative findings	27	
Collect scientific or technical data	30	
Communicate technical information	4	
Develop or maintain databases	30	
Develop plans for programs or projects	31	
Develop policies, procedures, methods, or standards	21	
Develop tables depicting data	33	
Direct and coordinate scientific research or investigative studies	27	
Explain complex mathematical information	30	

Interpret aerial photographs	69
Perform statistical analysis in physical science or geological research	71
Prepare reports	8
Prepare technical reports or related documentation	22
Read maps	42
Resolve engineering or science problems	46
Use computers to enter, access or retrieve data	3
Use geographic positioning system (GPS)	81
Use geographical information system (GIS) software	72
Use knowledge of investigation techniques	16
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use physical science research techniques	68
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use word processing or desktop publishing software	17

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 84

Focus Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)
Associated Occupation: Hydrologists (19-2043)

Tools and Technologies	Exclusivity
Audio and visual equipment	4
Business function specific software	1
Computer printers	2
Computers	1
Content authoring and editing software	1
Data management and query software	1
Industry specific software	1
Measuring and layout tools	3
Rock and strata measuring equipment	47

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.